

# CONTENTS

*Vols. 19-23*

## Author Index

- Corrigenda.** Vol. 19, No. 2 (June 1987), 195; Vol. 22, No. 4 (Dec. 1990), 409; Vol. 23, No. 3 (Sept. 1991), 413.
- Five-Year Author Index (1986-1990).** Vol. 22, No. 4 (Dec. 1990), 411-414.
- Five-Year Subject Index (1986-1990).** Vol. 22, No. 4 (Dec. 1990), 414-416.
- Abbott, R. J.** Resourceful Systems for Fault Tolerance, Reliability, and Safety. Vol. 22, No. 1 (March 1990), 35-68.
- Abbott, R. J.** Surveyor's Forum: Response to Strigini's comments on "Resourceful Systems for Fault Tolerance, Reliability, and Safety." Vol. 23, No. 3 (Sept. 1991), 409-411.
- Abeyesundara, B. W., and Kamal, A. E.** High-Speed Local Area Networks and Their Performance: A Survey. Vol. 23, No. 2 (June 1991), 221-264.
- Abramson, B.** Control Strategies for Two-Player Games. Vol. 21, No. 2 (June 1989), 137-161.
- Adam, N. R., and Wortmann, J. C.** Security-Control Methods for Statistical Databases: A Comparative Study. Vol. 21, No. 4 (Dec. 1989), 515-556.
- Andrews, G. R.** Paradigms for Process Interaction in Distributed Programs. Vol. 23, No. 1 (March 1991), 49-90.
- Atkinson, M. P., and Buneman, O. P.** Types and Persistence in Database Programming Languages. Vol. 19, No. 2 (June 1987), 105-190.
- Aurenhammer, I.** Voronoi Diagrams—A Survey of a Fundamental Geometric Data Structure. Vol. 23, No. 3 (Sept. 1991), 345-406.
- Bal, H. E., Steiner, J. G., and Tanenbaum, A. S.** Programming Languages for Distributed Computing Systems. Vol. 21, No. 3 (Sept. 1989), 261-322.
- Barghouti, N. S., and Kaiser, G. E.** Concurrency Control in Advanced Database Applications. Vol. 23, No. 3 (Sept. 1991), 269-318.
- Barkmeyer, E.** See Thomas, G. Vol. 22, No. 3 (Sept. 1990), 237-266.
- Bell, T., Witten, I. H., and Cleary, J. G.** Modeling for Text Compression. Vol. 21, No. 4 (Dec. 1989), 557-599.
- Buneman, O. P.** See Atkinson, M. P. Vol. 19, No. 2 (June 1987), 105-190.
- Carriero, N., and Gelernter, D.** How to Write Parallel Programs: A Guide to the Perplexed. Vol. 21, No. 3 (Sept. 1989), 323-357.
- Carter, F.** See Thomas, G. Vol. 22, No. 3 (Sept. 1990), 237-266.
- Chanson, S. T.** See Chin, R. S. Vol. 23, No. 1 (Mar. 1991), 91-124.
- Chin, R. S., and Chanson, S. T.** Distributed Object-Based Programming Systems. Vol. 23, No. 1 (March 1991), 91-124.
- Chu, P.** See Mannino, M. V. Vol. 20, No. 3 (Sept. 1988), 191-221.
- Chung, C.-W.** See Thomas, G. Vol. 22, No. 3 (Sept. 1990), 237-266.
- Cleary, J. G.** See Bell, T. Vol. 21, No. 4 (Dec. 1989), 557-591.
- Colburn, C. J., and Van Oorschot, P. C.** Applications of Combinatorial Designs in Computer Science. Vol. 21, No. 2 (June 1989), 223-250.
- Danforth, S. and Tomlinson, C.** Type Theories and Object-Oriented Programming. Vol. 20, No. 1 (Mar. 1988), 29-72.
- Du, H. C.** See Enbody, R. J. Vol. 20, No. 2 (June 1988), 85-113.
- Ellman, T.** Explanation Based Learning: A Survey of Programs and Perspectives. Vol. 21, No. 2 (June 1989), 163-221.
- Elmagarmid, A. K. and Pu, C.** Introduction to the Special Issue on Heterogeneous Databases. Vol. 22, No. 3 (Sept. 1990), 175-178.
- Enbody, R. J., and Du, H. C.** Dynamic Hashing Schemes. Vol. 20, No. 2 (June 1988), 85-113.
- Fox, S.** See Thomas, G. Vol. 22, No. 3 (Sept. 1990), 237-266.
- Frieder, G.** See Styzt, M. R. Vol. 23, No. 4 (Dec. 1991), 421-500.
- Frieder, O.** See Styzt, M. R. Vol. 23, No. 4 (Dec. 1991), 421-500.
- Galil, Z. and Italiano, G. F.** Data Structures and Algorithms for Disjoint Set Union Problems. Vol. 23, No. 3 (Sept. 1991), 319-344.



- Gelemter, D.** See Carriero, N. Vol. 21, No. 3 (Sept. 1989), 323-357.
- Goldberg, D.** What Every Computer Scientist Should Know About Floating-Point Arithmetic. Vol. 23, No. 1 (March 1991), 5-48.
- Hartman, B.** See Thomas, G. Vol. 22, No. 3 (Sept. 1990), 237-266.
- Hartson, H. R., and Hix, D.** Human-Computer Interface Development: Concepts and Systems. Vol. 21, No. 1 (Mar. 1989), 5-92.
- Helmbold, D. P.** See McDowell, D. E. Vol. 21, No. 4 (Dec. 1989), 593-622.
- Hirschberg, D. S.** See Lelewer, D. A. Vol. 19, No. 3 (Sept. 1987), 261-296.
- Hix, D.** See Hartson, H. R. Vol. 21, No. 1 (Mar. 1989), 5-92.
- Hudak, P.** Conception, Evolution, and Application of Functional Programming Languages. Vol. 21, No. 3 (Sept. 1989), 359-411.
- Hull, R., and King, R.** Semantic Database Modeling: Survey, Applications and Research Issues. Vol. 19, No. 3 (Sept. 1987), 201-260.
- Italiano, G. F.** See Galil, Z. Vol. 23, No. 3 (Sept. 1991), 319-344.
- Johnson, A. M., Jr., and Malek, M.** Survey of Software Tools for Evaluating Reliability, Availability and Serviceability. Vol. 20, No. 4 (Dec. 1988), 227-269.
- Kaiser, G. E.** See Barghouti, N. S. Vol. 23, No. 3 (Sept. 1991), 269-318.
- Kamal, A. E.** See Abeyundara, B. W. Vol. 23, No. 2 (June 1991), 221-264.
- Katz, R. H.** Toward a Unified Framework for Version Modeling in Engineering Databases. Vol. 22, No. 4 (Dec. 1990), 375-408.
- Kemper, A., and Wallrath, M.** An Analysis of Geometric Modeling in Database Systems. Vol. 19, No. 1 (Mar. 1987), 47-91.
- King, J. L.** See Kraemer, K. L. Vol. 20, No. 2 (June 1988), 115-146.
- King, R.** See Hull, R. Vol. 19, No. 3 (Sept. 1987), 201-260.
- Knapp, E.** Deadlock Detection in Distributed Databases. Vol. 19, No. 4 (Dec. 1987), 303-328.
- Knight, K.** Unification: A Multidisciplinary Survey. Vol. 21, No. 1 (Mar. 1989), 93-124.
- Kraemer, K. L., and King, J. L.** Computer-Based Systems for Cooperative Work and Group Decision Making. Vol. 20, No. 2 (June 1988), 115-146.
- Larson, J. A.** See Sheth, A. P. Vol. 22, No. 3 (Sept. 1990), 184-236.
- Lelewer, D. A., and Hirschberg, D. S.** Data Compression. Vol. 19, No. 3 (Sept. 1987), 261-296.
- Levy, E., and Silberschatz, A.** Distributed File Systems: Concepts and Examples. Vol. 22, No. 4 (Dec. 1990), 321-374.
- Litwin, W., Mark, L., and Roussopoulos, N.** Interoperability of Multiple Autonomous Databases. Vol. 22, No. 3 (Sept. 1990), 267-293.
- Lyytinen, K.** Different Perspectives on Information Systems: Problems and Solutions. Vol. 19, No. 1 (Mar. 1987), 5-46.
- Malek, M.** See Johnson, A. M., Jr. Vol. 20, No. 4 (Dec. 1988), 227-269.
- Mandl, R.** Surveyors' Forum. Vol. 22, No. 2 (June 1990), 171.
- Mannino, M. V., Chu, P., and Sager, T.** Statistical Profile Estimation in Database Systems. Vol. 20, No. 3 (Sept. 1988), 191-221.
- March, S. T.** Editorial Policy. Vol. 19, No. 2 (June 1987), 97-104.
- March, S. T.** Editorial Policy. Vol. 20, No. 2 (June 1988), 77-84.
- March, S. T.** Editorial Policy. Vol. 21, No. 2 (June 1989), 129-136.
- March, S. T.** Editorial Policy. Vol. 22, No. 2 (June 1990), 73-81.
- March, S. T.** Editorial Policy. Vol. 23, No. 2 (June 1991), 133-141.
- Mark, L.** See Litwin, W. Vol. 22, No. 3 (Sept. 1990), 267-293.
- Maryanski, F.** See Peckham, J. Vol. 20, No. 3 (Sept. 1988), 153-189.
- Mazumder, P.** See Shahookan, K. Vol. 23, No. 2 (June 1991), 143-220.
- McDowell, C. E., and Helmbold, D. P.** Debugging Concurrent Programs. Vol. 21, No. 4 (Dec. 1989), 593-622.
- McKenzie, L. E., and Snodgrass, R. T.** An Evaluation of Relational Algebras Incorporating the Time Dimension in Databases. Vol. 23, No. 4 (Dec. 1991), 501-543.
- Mills, C. B., and Weldon, L. J.** Reading Text from Computer Screens. Vol. 19, No. 4 (Dec. 1987), 329-358.
- Onvural, R. O.** Survey of Closed Queueing Networks with Blocking. Vol. 22, No. 2 (June. 1990), 83-121.
- Pawlikowski, K.** Steady-State Simulation of Queueing Processes: A Survey of Problems and Solutions. Vol. 22, No. 2 (June 1990), 124-170.
- Peckham, J., and Maryanski, F.** Semantic Data Models. Vol. 20, No. 3 (Sept. 1988), 153-189.
- Pu, C.** See Elmagarmid, A. K. Vol. 22, No. 3 (Sept. 1990), 175-178.
- Rosenblum, D. S.** See Sankar, S. Vol. 23, No. 1 (March 1991), 125-127.

- Roussopoulos, N.** See Litwin, W. Vol. 22, No. 3 (Sept. 1990), 267-293.
- Sager, T.** See Mannino, M. V. Vol. 20, No. 3 (Sept. 1988), 191-221.
- Samet, H.** Hierarchical Representations of Collections of Small Rectangles. Vol. 20, No. 4 (Dec. 1988), 271-309.
- Sankar, S., and Rosenblum, D. S.** Surveyor's Forum: Routine Checking and Debugging of Formally Specified Programs. Vol. 23, No. 1 (March 1991), 125-127.
- Schneider, F. B.** Implementing Fault-Tolerant Services Using the State Machine Approach: A Tutorial. Vol. 22, No. 4 (Dec. 1990), 299-319.
- Segev, A.** Surveyor's Forum. Transitive Dependencies. Vol. 19, No. 2 (June 1987), 191-192.
- Shahookar, K., and Mazumder, P.** VLSI Placement Techniques. Vol. 23, No. 2 (June 1991), 143-220.
- Shapiro, E.** Corrigendum. Vol. 21, No. 4 (Dec. 1989), 629.
- Shapiro, E.** The Family of Concurrent Logic Programming Languages. Vol. 21, No. 3 (Sept. 1989), 413-510.
- Sheth, A. P., and Larson, J. A.** Federated Database Systems for Managing Distributed, Heterogeneous, and Autonomous Databases. Vol. 22, No. 3 (Sept. 1990), 184-236.
- Silberschatz, A.** See Levy, E. Vol. 22, No. 4 (Dec. 1990), 321-374.
- Snodgrass, R. T.** See McKenzie, L. E. Vol. 23, No. 4 (Dec. 1991), 501-543.
- Steiner, J. G.** See Bal, H. E. Vol. 21, No. 3 (Sept. 1989), 261-322.
- Strigini, L.** Surveyor's Forum: Comments on "Resourceful Systems for Fault Tolerance, Reliability and Safety". Vol. 23, No. 3 (Sept. 1991), 407-409.
- Stytz, M. R., Frieder, G., and Frieder, O.** Three-Dimensional Medical Imaging: Algorithms and Computer Systems. Vol. 23, No. 4 (Dec. 1991), 421-500.
- Takagi, H.** Queuing Analysis of Polling Models. Vol. 20, No. 1 (Mar. 1988), 5-28.
- Tanenbaum, A. S.** See Bal, H. E. Vol. 21, No. 3 (Sept. 1989), 261-322.
- Templeton, M.** See Thomas, G. Vol. 22, No. 3 (Sept. 1990), 237-266.
- Teorey, T. J.** Surveyor's Forum. Vol. 19, No. 2 (June 1987), 193.
- Thomas, G., Thompson, G. R., Chung, C.-W., Barkmeyer, E., Carter, F., Templeton, M., Fox, S., and Hartman, B.** Heterogeneous Distributed Database Systems for Production Use. Vol. 22, No. 3 (Sept. 1990), 237-266.
- Thompson, G. R.** See Thomas, G. Vol. 22, No. 3 (Sept. 1990), 237-266.
- Tominson, C.** See Danforth, S. Vol. 20, No. 1 (Mar. 1988), 29-72.
- Van de Goor, A. J., and Verruijt, C. A.** An Overview of Deterministic Functional RAM Chip Testing. Vol. 22, No. 1 (Mar. 1990), 5-33.
- Van Oorshot, P. C.** See Colbourn, C. J. Vol. 21, No. 2 (June 1989), 223-250.
- Verruijt, C. A.** See Van de Goor, A. J. Vol. 22, No. 1 (Mar. 1990), 5-33.
- Wallrath, M.** See Kemper, A. Vol. 19, No. 1 (Mar. 1987), 47-91.
- Wegner, P.** Introduction to the Special Issue on Programming Language Paradigms. Vol. 21, No. 3 (Sept. 1989), 253-258.
- Weldon, L. J.** See Mills, C. B. Vol. 19, No. 4 (Dec. 1987), 329-358.
- Witten, I. H.** See Bell, T. Vol. 21, No. 4 (Dec. 1989), 557-591.
- Wortmann, J. C.** See Adam, N. R. Vol. 21, No. 4 (Dec. 1989), 515-556.

## Subject Index 1987-1991

### Algorithms

Galil and Italiano  
Aurenhammer

September 1991  
September 1991

### Artificial Intelligence

Abramson  
Ellman

June 1989  
June 1989

### Computer Architecture; IC Design

Van de Goor and Verruijt  
Shahookar and Mazumder

March 1990  
June 1991

<b>Computer System Design</b> Goldberg	March 1991
<b>Computing Methodologies</b> Knight	March 1989
<b>Data Communications and Networks</b> Abeyesundara and Kamal	June 1991
<b>Database Management</b> Kemper and Wallrath Hull and King Peckham and Maryanski Mannino, Chu, and Sager Adam and Wortmann Sheth and Larson Thomas, Thompson, Chung, Barkmeyer, Carter, Templeton, Fox, and Hartman Litwin, Mark, and Roussopoulos Katz Barghouti and Kaiser McKenzie and Snodgrass	March 1987 September 1987 September 1988 September 1988 December 1989 September 1990 September 1990 September 1990 September 1991 December 1991
<b>Data Management and Organization</b> Lelewer and Hirschberg Enbody and Du Samet Bell, Witten, and Cleary	September 1987 March 1988 December 1988 December 1989
<b>Distributed and Cooperative Computing</b> Andrews	March 1991
<b>Fault-Tolerant Software</b> Abbott	March 1990
<b>Graphics and Image Processing</b> Stytz, Frieder, and Frieder	December 1991
<b>Information Systems Applications</b> Kraemer and King	June 1988
<b>Management of Computing</b> Lyytinen	March 1987
<b>Networks: Distributed Computing</b> Knapp Schneider	December 1987 December 1990
<b>Operating Systems</b> Levy and Silberschatz Chin and Chanson	December 1990 March 1991

**Performance Modeling**

Takagi  
Johnson and Malek  
Onvural

March 1988  
December 1988  
June 1990

**Programming Languages**

Atkinson and Buneman  
Danforth  
Bal, Steiner, and Tanenbaum  
Carriero and Gelernter  
Hudak  
Shapiro

June 1987  
March 1988  
September 1989  
September 1989  
September 1989  
September 1989

**Programming Methods, Validation, Testing**

McDowell and Helmbold

December 1989

**Simulation and Modeling**

Pawlikowski

June 1990

**Theory of Computation**

Colbourn and van Oorshot

June 1989

**User Psychology**

Mills and Weldon  
Hartson and Hix

December 1987  
March 1989

